Amendments to the Claims

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims

1. – 25. (Cancelled)

26. (Currently Amended) A system for storing life science information, the system comprising:

an electronic database storage module for storing a plurality data in the form of case frames, each case frame comprising:

at least two unspecified object identifiers; and

a relationship connector, wherein the relationship connector relates two of the at least two object identifiers to each other and is based on a life science ontology; and

an inference engine module for managing the addition of new data to the database by translating the data into a form compatible with the database, selecting instantiating a subset of the plurality of case frame[[s]] as a template to represent the new data based at least in part on the life science ontology and for assigning elements of the new data to the object identifiers, thus and assuring the instantiated case frames conform to the life science ontology and, thereby creating new life science assertions in the database.

27. (Previously Presented) The system of claim 26, wherein a set of said case frames define a biological function.

28. (Previously Presented) The system of claim 27, wherein the biological function comprises a chemical reaction.

29. (Previously Presented) The system of claim 27, wherein the biological function comprises transport.

30. (Previously Presented)   The system of claim 27, wherein the biological function comprises digestion of a biomolecule.

31. (Previously Presented)   The system of claim 26, wherein at least one of the at least two object identifiers identifies a biomolecule.

32. (Previously Presented)   The system of claim 26, wherein at least one of the at least two object identifiers identifies a biological function.

33. (Previously Presented)   The system of claim 26, wherein at least one of the at least two object identifiers identifies a relationship connector.

34. (Previously Presented) The system of claim 26, wherein the relationship connector represents an identity relationship.

35. (Previously Presented) The system of claim 26, wherein the relationship connector represents a product relationship.

36. (Previously Presented) The system of claim 26, wherein the relationship connector represents a substrate relationship.

37. (Currently Amended)   The system of claim 26, wherein the relationship connector represents an enzymatic relationship.

38. (Previously Presented)   The system of claim 26 further comprising a graphical user interface configured to permit a user to query the database based on the relationship connector.

39. (Previously Presented)   The system of claim 26 further comprising a data input interface configured to accept user instructions relating to the creation of a new case frame.

40. (Previously Presented)   The system of claim 26 further comprising an access manager configured to restrict access to one or more portions of the electronic database.

41. – 91. (Cancelled)

92. (Previously Presented) The system of claim 26 wherein the inference engine further modifies the selected case frames such that the selected case frames more accurately represent the new data.

93. (Previously Presented) The system of claim 92 wherein the modifications comprise one or more of the addition of new fields, the addition of new relationships, and the addition of metadata.

94. (Previously Presented) The system of claim 93 wherein the metadata comprises one or more of the source of the new data, the date the new data was received, the time the new data was received, and the experimental conditions under which the new data was created.

95. (Previously Presented) The system of claim 26 further comprising a harmonization and transfer module for interfacing with multiple disparate sources of life science data and receiving the new data.

96. (Previously Presented) The system of claim 95 wherein the received data is received in XML format.

97. (Previously Presented) the system of claim 95 wherein the harmonization and transfer module further translates the received data into a data format compatible with the case frames.

98. (Currently Amended) The system of claim [[41]] 26 further comprising a discovery environment for displaying pathways among the plurality of case frames, the pathways representing causal relationships among the case frames.

99. (Currently Amended) The system of claim [[41]] 26 further comprising a managed account interface for attributing access restrictions to one or more case frames in the database.

100. (Previously Presented) The system of claim 99 wherein the access restrictions comprise one or more of public access rights, subscription-based access rights, and proprietary access rights.

101. (Currently Amended) A system for storing life science data, the system comprising:
    an electronic database storage device for storing a plurality of case frames, each case frame comprising:
        at least two object identifiers; and
        a relationship connector, wherein the relationship connector relates two of the at least two object identifiers to each other and is based on a life science ontology; and
        wherein the database comprises case frames representing at least enzyme reactions, binding interactions, modifications of polymers, protein phosphorylation reactions, gene expressions, acetylation, peptide-bond cleavage, glycosylayion, lipidation, fatty-acylation, methylation, metallation, cross-linking, hydroxylation, sulfation, ADP-ribosylation, translocation and transcriptional activations.

102. (Previously Presented) The system of claim 101 wherein the case frame representing protein phosphorylation reactions comprises a reactant, a product, and a catalyst.

103. (Previously Presented) The system of claim 101 wherein the case frame representing gene expressions comprises a gene and a gene product.

104. (Previously Presented) The system of claim 101 wherein the case frame representing transcriptional activation comprises a gene expression, an activation, and a transcriptional activator.

105. (Previously Presented) The system of claim 101 further comprising a harmonization and transfer module for interfacing with multiple disparate sources of life science data and receiving new data for inclusion in the database.

106. (Previously Presented) The system of claim 105 further comprising an inference engine for managing the addition of the new data by instantiating a subset of the plurality of case frames to represent the new data and assuring the instantiated case frames conform to the life science ontology, thereby creating life science assertions in the database.